

Regarding Claim 54, Raina discloses a "passivation layer" "disposed over said second electrodes" (col 5 lines 60-67, col 8 lines 22-41). However, Raina discloses a passivation layer disposed over a plurality of second electrodes (col 8 lines 37-41), not a "gate structure disposed over said layer of silicon nitride" as is claimed in the present claimed invention. Claim 54, therefore, as amended, distinguishes over the cited art reference and Examiner's rejection is respectfully traversed.

35 U.S.C. §103

Claims 1-3, 10 and 20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,594,297 to Shen et al in view of U.S. Patent 5,894,188 to Chakvorty et al. Applicants have reviewed Examiner's arguments and the cited references and respectfully respond in the following fashion.

Regarding Claims 1 and 20: Shen discloses a field emission display comprising first conductive electrodes formed on an insulating substrate (col 3 lines 40-67). Chakvorty discloses a cladding layer deposited on the electrode (col 5 lines 60-61). However, neither Shen nor Chakvorty disclose a "cladding layer disposed over said metal alloy" wherein "said plurality of second electrodes" comprises "said metal alloy" as claimed in the present invention. Furthermore, Chakvorty teaches away from the present invention in its disclosure of a cladding layer deposited over the backplate (col 5 lines 58-59) rather than over "said plurality of second electrodes" as claimed in the present invention. Applicants respectfully submit, therefore, that Claim 1 distinguishes over the cited art reference and is in condition for allowance and Examiner's rejection is respectfully traversed.

Claims 2, 3, 10 and 20 depend from and further limit non-obvious Claim 1. As such, Claims 2, 3, 10 and 20 are also in condition for allowance.

Claims 4 – 8 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,594,297 to Shen et al and U.S. Patent 5,894,188 to Chakvorty et al in view of U.S. Patent 6,320,138 to Kamiya et al.

Claims 4 - 8 depend from and further limit Claim 1 which, as noted above, distinguishes over the cited art references and is in condition for allowance. However, Applicant notes that Kamiya, in combination with Shen and Chakvorty, discloses an electrode structure made of aluminum alloy comprising aluminum, titanium and neodymium (col 4 line 60 - col 6 line 36). However, Kamiya teaches away from the present invention's claimed "4 to 5 atomic percent titanium" in stating that it is preferred to keep the concentration of neodymium and titanium to between 0.2 atomic % and 3.5 atomic % (col 6, lines 60 – 63). Therefore, Applicant submits that the combined teachings of Kamiya, Shen and Chakvorty do not render obvious the present claimed invention. Thus Claims 4 – 8 are, as is independent Claim 1 from which they depend, in condition for allowance and Examiner's rejection is respectfully traversed.

Regarding Claims 11 – 17, Claims 11-17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,594,297 to Shen et al and U.S. Patent 5,894,188 to Chakvorty et al in view of U.S. Patent 6,265,822 to Kuroda et al.

Claims 11 – 17 depend from and further limit Claim 1 which, as noted above, distinguishes over the cited prior art combination is in condition for allowance. Therefore, Claims 11 – 17 are also in condition for allowance.

Regarding Claims 18 and 19, Claims 18 and 19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,594,297 to Shen et al and U.S. Patent 5,894,188 to Chakvorty et al in view of U.S. Patent 6,064,149 to Raina et al.

Claims 18 and 19 also depend from and further limit Claim 1 which is in condition for allowance. Therefore, Claims 18 and 19 are also in condition for allowance.

Regarding Claims 56-58 and 60, Claims 56-58 and 60 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,064,149 to Raina et al in view WO 98/43268 to Amey.

Claims 56-58 and 60, as amended, depend from and further limit amended Claim 54. Claim 54, as amended, is in condition for allowance, therefore Claims 56-58 and 60 are also in condition for allowance.

Regarding Claim 59, Claim 59 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,064,149 to Raina et al and WO 98/43268 to Amey in view of U.S. Patent 5,894,188 to Chakvorty et al.

Claim 59 depends from and further limits amended Claim 54. Claim 54, as amended, is in condition for allowance, therefore Claim 59 is also in condition for allowance.

Regarding Claims 67-69; Claims 67 and 68 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,064,149 to Raina et al and WO 98/43268 to Amey in view of U.S. Patent 5,894,188 to Chakvorty et al. Claim 69 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,594,297 to Shen et al and WO 98/43268 to Amey in view of U.S. Patent 5,319,279 to Watanabe et al.

Claims 68 and 69 have been cancelled herein and their respective limitations rolled into Claim 67. Claim 67 has been further amended to more clearly distinguish over the combined cited art references.

Shen discloses dielectric layers comprising silicon dioxide (col 5 lines 63, 64) and Watanabe discloses forming a conical emitter of a molybdenum layer and a silicon dioxide layer. However, Shen, Watanabe and Amey, either alone or in combination, do not show an electrode structure comprising "an evaporated molybdenum layer disposed over said second dielectric layer; and a sputtered molybdenum layer disposed over said evaporated molybdenum layer." Claim 67, as amended, distinguishes over the combined cited art references. Therefore, Applicant submits that Claim 67, as amended, is in condition for allowance.

CONCLUSION

Claims 55 – 57, 68 and 69 have been cancelled herein without prejudice. Claims 2-4, 8-11, 13, 14 and 16-23 have been amended herein.


Based on the amendments presented above, Applicants respectfully assert that Claims 2, 8 and 20, as amended, overcome the objections of record and are now in allowable form.

Applicants respectfully solicit reconsideration and subsequent allowance of these Claims.

The Examiner is invited to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Previously Amended) An electrode structure for a display device comprising:
a plurality of first electrodes disposed over a backplate, said plurality of first electrodes further comprising a metal alloy;
a dielectric layer disposed over said plurality of first electrodes; and
a plurality of second electrodes, said plurality of second electrodes disposed over said dielectric layer, said plurality of second electrodes further comprising said metal alloy, wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy.
2. (Unchanged) An electrode structure for a display as recited in Claim I wherein said plurality of first electrodes are row electrodes and said plurality of second electrodes are column electrodes.
3. (Unchanged) An electrode structure for a display as recited in Claim I wherein said plurality of first electrodes are column electrodes and said plurality of second electrodes are row electrodes.
4. (Unchanged) An electrode structure for a display as recited in Claim I wherein said metal alloy comprises an aluminum alloy.
5. (Unchanged) An electrode structure for a display as recited in Claim 4 wherein said aluminum alloy comprises aluminum and neodymium.
6. (Unchanged) An electrode structure for a display as recited in Claim 5 wherein said aluminum alloy comprises from approximately .5 atomic percent neodymium to approximately 6 atomic percent neodymium.
7. (Unchanged) An electrode structure for a display as recited in Claim 5 wherein said aluminum alloy further comprises titanium.
8. (Amended) An electrode structure for a display as recited in Claim 7 wherein said aluminum alloy comprises [up to] approximately 4 to 5 atomic percent titanium.
10. (Amended) An electrode structure for a display as recited in Claim [9] 1 wherein said cladding layer comprises molybdenum and tungsten.
11. (Unchanged) An electrode structure for a display as recited in Claim I wherein said metal alloy comprises a silver alloy.
12. (Unchanged) An electrode structure for a display as recited in Claim 11 wherein said silver alloy comprises silver and palladium.

13. (Unchanged) An electrode structure for a display as recited in Claim 12 wherein said silver alloy comprises from approximately .5 atomic percent palladium to approximately 2 atomic percent palladium.
14. (Unchanged) An electrode structure for a display as recited in Claim 12 wherein said silver alloy further comprises copper.
15. (Unchanged) An electrode structure for a display as recited in Claim 14 wherein said silver alloy comprises from approximately .5 atomic percent copper to approximately 2 atomic percent copper .
16. (Unchanged) An electrode structure for a display as recited in Claim 12 wherein said silver alloy further comprises titanium.
17. (Unchanged) An electrode structure for a display as recited in Claim 16 wherein said silver alloy comprises up to approximately 2 atomic percent titanium.
18. (Unchanged) An electrode structure for a display as recited in Claim 1 further comprising: a passivation layer disposed over said plurality of second electrodes.
19. (Unchanged) An electrode structure for a display as recited in Claim 18 wherein said passivation layer comprises silicon nitride.
20. (Unchanged) An electrode structure for a display as recited in Claim 1 further comprising a resistor layer overlying said plurality of first electrodes, said dielectric layer overlying said resistor layer .
54. (Amended) An electrode structure for a display device comprising:
a) a plurality of first electrodes;
b) a resistor layer disposed over said plurality of first electrodes;
c) a dielectric layer disposed over said resistor layer;
d) a plurality of second electrodes disposed over said dielectric layer; [and]
e) a passivation layer comprising a layer of silicon nitride disposed over said plurality of second electrodes; and
f) a gate structure disposed over said layer of silicon nitride.
55. (Cancelled) An electrode structure for a display as recited in claim 54 wherein said passivation layer comprises a layer of silicon nitride.
56. (Cancelled) An electrode structure for a display as recited in claim 55 further comprising:
f) a gate structure, said gate structure disposed over said layer of silicon nitride.
57. (Cancelled) An electrode structure for a display as recited in claim 55 further comprising:
f) a gate structure, said gate structure disposed between said plurality of second electrodes and said layer of silicon nitride.

58. (Unchanged) An electrode structure for a display as recited in claim [55] 54 further comprising:

f) a gate structure, said gate structure disposed between said dielectric layer and said plurality of second electrodes.

59. (Unchanged) An electrode structure for a display as recited in claim 58 further comprising:

g) a tantalum structure, said tantalum structure disposed between said gate structure and said plurality of second electrodes.

60. (Unchanged) An electrode structure for a display as recited in claim 55 further comprising:

g) a dielectric layer disposed between said plurality of second electrodes and said layer of silicon nitride.

67. (Amended) An electrode structure for a display device comprising:

- a) a plurality of first electrodes;
- b) a resistor layer disposed over said plurality of first electrodes;
- c) a first dielectric layer comprising a layer of silicon dioxide disposed over said resistor layer;
- d) a plurality of second electrodes disposed over said dielectric layer; [and]
- e) a second dielectric layer disposed over said plurality of second electrodes[.];
- f) an evaporated molybdenum layer disposed over said second dielectric layer; and
- g) a sputtered molybdenum layer disposed over said evaporated molybdenum layer.

68. (Cancelled) An electrode structure for a display as recited in claim 67 wherein said first dielectric layer comprises a layer of silicon dioxide.

69. (Cancelled) An electrode structure for a display as recited in claim 68 further comprising: an evaporated molybdenum layer disposed between a sputtered molybdenum layer and said second dielectric layer .